AMENDMENTS TO THE CLAIMS

Claims 1-19 (Cancelled)

Claim 20 (Currently Amended) A confocal optical system aperture position detector, comprising:

a light source;

first focusing means for focusing light exiting ~~from~~ the light source onto a sample;

second focusing means for focusing, at a focusing point position, light having passed through the sample or light reflected from ~~on~~ the sample;

an aperture provided at ~~a~~ the focusing point position of the second focusing means; and

a detector that receives light having passed by the aperture, the detector including a plurality of light reception regions and receiving the light at the plurality of ~~plural~~ light reception regions,

wherein the detector measures a light quantity balance of the light received at the plurality of light reception regions to detect a position displacement between the light focused at the focusing point position by the second focusing means and the aperture.

Claim 21 (Currently Amended) The confocal optical system aperture position detector according to claim 20, wherein[[:]] the plurality of light reception regions of the detector are divided ~~so as~~ to ~~be capable of detecting~~ detect a 2-D position of the light that passes by the aperture.

Claim 22 (Currently Amended) The confocal optical system aperture position detector

according to claim 20, wherein[[:]] the aperture includes ~~has~~ a pin hole and the detector ~~has~~ includes four divided light reception regions.

Claim 23 (Currently Amended) The confocal optical system aperture position detector according to claim 20, wherein[[:]] a material of the aperture is an electrical ~~electrically good~~ conductor.

Claim 24 (Currently Amended) The confocal optical system aperture position detector according to claim 20, wherein[[:]] the first focusing means and the second focusing means are one and the same.

Claim 25 (Currently Amended) A confocal optical system aperture position controller comprising:

a light source;

first focusing means for focusing light exiting ~~from~~ the light source onto a sample;

second focusing means for focusing, at a focusing point position, light having passed through the sample or light reflected from ~~on~~ the sample;

an aperture provided at the ~~a~~ focusing point position of the second focusing means;

a detector that receives light having passed by the aperture, the detector including a plurality of reception regions and receiving the light at the plurality of ~~plural~~ light reception regions;

driving means for driving an optical member, which is ~~any~~ one of the light source, the

second focusing means, and the aperture, within a plane perpendicular to a local optical axis accompanying the optical member; and

control means for controlling the driving means based on ~~the basis of~~ a quantity of light received at each light reception region of the plurality of ~~plural~~ light reception regions of the detector,

wherein the detector measures a light quantity balance of the light received at the plurality of light reception regions to detect a position displacement between the light focused at the focusing point position by the second focusing means and the aperture, and

wherein the control means controls the driving means based on the position displacement detected by the detector.

Claim 26 (Currently Amended) The confocal optical system aperture position controller according to claim 25, wherein:

the driving means is ~~used as~~ a first driving means;

the confocal optical system aperture position controller further comprises second driving means for driving ~~an~~ another optical member, which is ~~any~~ one of the light source, the second focusing means, and the aperture, in a direction parallel to a local optical axis accompanying the another optical member; and

the control means controls the first driving means and the second driving means based on ~~the basis of~~ the quantity of light received at each light reception region of the plurality of ~~plural~~ light reception regions of the detector.

Claim 27 (Currently Amended) The confocal optical system aperture position controller according to claim 25, wherein[[:]] the first focusing means and the second focusing means are one and the same.

Claim 28 (Currently Amended) A confocal optical system aperture position controller comprising:

a light source;

first focusing means for focusing light exiting ~~from~~ the light source onto a sample;

second focusing means for focusing, at a focusing point position, light having passed through the sample or light reflected from ~~on~~ the sample;

an aperture provided at the ~~a~~ focusing point position of the second focusing means;

a detector that receives light having passed by the aperture, the detector including a plurality of light reception regions and receiving the light at the plurality of ~~plural~~ light reception regions;

a parallel plate provided between the second focusing means and the aperture;

driving means for tilting the parallel plate with respect to an optical axis of light that passes through the parallel plate; and

control means for controlling the driving means based on ~~the basis of~~ a quantity of light received at each light reception region of the plurality of ~~plural~~ light reception regions of the detector,

wherein the detector measures a light quantity balance of the light received at the plurality of light reception regions to detect a position displacement between the light focused at

the focusing point position by the second focusing means and the aperture, and

wherein the control means controls the driving means based on the position displacement detected by the detector.

Claim 29 (Currently Amended) An optical head comprising:

a light source;

first focusing means for focusing light exiting ~~from~~ the light source onto an intended information layer ~~in~~ of an optical recording medium formed by layering plural information layers;

first driving means for driving the first focusing means within a plane perpendicular to an optical axis of light that passes through the first focusing means;

second focusing means for focusing, at a focusing point position, reflected light or light transmitted ~~light~~ from the intended information layer;

an aperture provided at ~~a~~ the focusing point position of the second focusing means;

a detector that receives light having passed by the aperture, the detector including a plurality of light reception regions and receiving the light at the plurality of ~~plural~~ light reception regions;

second driving means for driving an optical member, which is ~~any~~ one of the light source, the second focusing means, and the aperture, within a plane perpendicular to a local optical axis accompanying the optical member; and

control means for controlling the second driving means based on ~~the basis of~~ a quantity of light received at each light reception region of the plurality of ~~plural~~ light reception regions of

the detector,

wherein the detector measures a light quantity balance of the light received at the plurality of light reception regions to detect a position displacement between the light focused at the focusing point position by the second focusing means and the aperture, and

wherein the control means controls the second driving means based on the position displacement detected by the detector.

Claim 30 (Currently Amended) The optical head according to claim 29, wherein[[:]] the control means controls the first driving means ~~in addition to the second driving means, and controls the first driving means~~ according to a high frequency signal obtained from the detector ~~while controlling~~ and controls the second driving means according to a low frequency signal obtained from the detector.

Claim 31 (Currently Amended) The optical head according to claim 29, wherein[[:]] the aperture includes ~~has~~ a pin hole and the detector ~~has~~ includes four divided light reception regions.

Claim 32 (Currently Amended) The optical head according to claim 29, wherein[[:]] the first focusing means and the second focusing means are one and the same.

Claim 33 (Currently Amended) An optical information processor comprising:

the optical head according to claim 29; and

a driving mechanism that drives the optical recording medium.

Claim 34 (Currently Amended) An optical head comprising:

a light source;

first focusing means for focusing light exiting ~~from~~ the light source onto an intended information layer ~~in~~ of an optical recording medium formed by layering plural information layers;

first driving means for driving the first focusing means within a plane perpendicular to an optical axis of light that passes through the first focusing means;

second focusing means for focusing, at a focusing point position, reflected light or light transmitted ~~light~~ from the intended information layer;

an aperture provided at ~~a~~ the focusing point position of the second focusing means;

a detector that receives light having passed by the aperture, the detector including a plurality of light reception regions and receiving the light at the plurality of ~~plural~~ light reception regions;

a parallel plate provided between the second focusing means and the aperture;

second driving means for tilting the parallel plate with respect to an optical axis of light that passes through the parallel plate; and

control means for controlling the second driving means based on ~~the basis of~~ a quantity of light received at each light reception region of the plurality of ~~plural~~ light reception regions of the detector,

wherein the detector measures a light quantity balance of the light received at the

plurality of light reception regions to detect a position displacement between the light focused at the focusing point position by the second focusing means and the aperture, and

wherein the control means controls the second driving means based on the position displacement detected by the detector.

Claim 35 (Currently Amended) An optical head comprising:

a light source;

first focusing means for focusing light exiting ~~from~~ the light source onto an intended information layer of ~~in~~ an optical recording medium formed by layering plural information layers;

first driving means for driving the first focusing means within a plane perpendicular to an optical axis of light that passes through the first focusing means;

second focusing means for focusing, at a focusing point position, reflected light or light transmitted ~~light~~ from the intended information layer;

an aperture provided at ~~a~~ the focusing point position of the second focusing means;

a detector that receives light having passed by the aperture, the detector including a plurality of light reception regions and receiving the light at the plurality of ~~plural~~ light reception regions;

second driving means for driving an optical member, which is one of the second focusing means and the aperture, within a plane perpendicular to a local optical axis accompanying the optical member;

third driving means for diving ~~an~~ another optical member, which is one of the second

focusing means and the aperture, in a direction parallel to the local optical axis; and

control means for controlling the second driving means and the third driving means based on ~~the basis of~~ a quantity of light received at each light reception region of the plurality of ~~plural~~ light reception regions of the detector,

wherein the detector measures a light quantity balance of the light received at the plurality of light reception regions to detect a position displacement between the light focused at the focusing point position by the second focusing means and the aperture, and

wherein the control means controls the second driving means and the third driving means based on the position displacement detected by the detector.

Claim 36 (Currently Amended) The optical head according to claim 35, wherein[[:]] the control means controls the first driving means ~~in addition to the second and third driving means, and controls the first driving means~~ according to a high frequency signal obtained from the detector ~~while controlling~~ and controls the second driving means and the third driving means according to a low frequency signal obtained from the detector.

Claim 37 (Currently Amended) A confocal optical system aperture position detecting method comprising:

a first focusing step of focusing light exiting ~~from~~ a light source onto a sample;

a second focusing step of focusing, at a focusing point position, light having passed through the sample or light reflected from ~~on~~ the sample;

a light detecting step of receiving light focused in the second focusing step and having

passed by an aperture provided at ~~a~~ the focusing point position ~~in the second focusing step~~, the light received by the light detecting step being received at a plurality of ~~plural~~ light reception regions; and

a position detecting step of detecting a position displacement between the light focused at the focusing point position by the second focusing step and the aperture by detecting a position of a dark portion, which is (i) a region where luminance is lower than its surroundings in the plurality of light reception regions, and (ii) generated when a part of the light focused at the focusing point position by ~~in~~ the second focusing step is shielded by the aperture while the light passes by the aperture in the light detecting step.

Claim 38 (Currently Amended) A confocal optical system aperture position detecting method comprising:

a first focusing step of focusing light exiting ~~from~~ a light source onto a sample;

a second focusing step of focusing, at a focusing point position, light having passed through the sample or light reflected from ~~on~~ the sample;

a light detecting step of receiving light focuses in the second focusing step and having passed by an aperture provided at ~~a~~ the focusing point position ~~in the second focusing step~~, the light received by the light detecting step being received at a plurality of ~~plural~~ light reception regions; and

a position detecting step of detecting a position displacement between the light focused at the focusing point position by the second focusing step and the aperture by detecting a position of an asymmetric pattern of a quantity of light generated when the light focused at the focusing

point position by ~~in~~ the second focusing step is scattered by the aperture while the light passes by the aperture in the light detecting step.